

REMARKS

I. Summary of the Examiner's Action

A. Claim Rejections

As set forth in paragraph 2 of the August 21 Office Action, claims 1 – 3 and 12 – 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant Admitted Prior Art (hereinafter “AAPA”) in view of United States Patent No. 6,920,315 B1 to Wilcox *et al.* (hereinafter “the Wilcox patent”).

As set forth in paragraph 3 of the August 21 Office Action, claims 5 – 9 and 16 – 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of the Wilcox patent and further in view of United States Patent No. 6,072,993 to Trikha *et al.* (hereinafter “the Trikha patent”).

These rejections are respectfully disagreed with, and traversed below.

II. Applicants' Response – Claim Rejections

A. Rejection of Claims 1 – 3 and 12 – 14 under 35 U.S.C. § 103(a)

Applicant has amended claim 1 so that it recites:

1. A method for operating a multi-mode mobile station comprising at least first and second antennas, each of the first and second antennas having resonance frequencies, wherein at least two modes of the multi-mode mobile station operate within at least one common range of frequencies, the method comprising:

transmitting a signal from the first antenna of the mobile station in the common range of frequencies; and

changing the resonance frequency of the second antenna of the mobile station so as to reduce coupling of the transmitted signal from the first antenna into the second antenna, wherein the step of changing comprises varying an impedance of at least one component that forms a part of the second antenna.

No new matter has been added by the amendments to claims 1. Applicant respectfully submits that it is not seen where any of the art relied upon by the Examiner either describes or suggests the subject matter of claim 1 whether taken singly or in combination.

As background, Applicant reproduces the following portion from the application appearing at page 3 lines 1 – 10 describing how Applicants' invention works (emphasis added):

“In accordance with the teachings of this invention the mobile station is provided with two antennas, thereby eliminating the need for the antenna mode selection switch and the ESD protection component and the resulting losses and related thermal and other problems. The undesirable coupling of transmitted energy from one antenna circuit into the other is minimized or reduced by detuning or retuning the non-transmitting antenna circuit such that it no longer has a resonant frequency in the frequency band being transmitted. The detuning or retuning is performed automatically and electronically by any number of techniques, such as by changing the length of a strip line RF element, or by deactivating an active

RF component, or by mechanically retuning an external antenna by changing the antenna length. In addition, an internal antenna can be constructed so as to be disconnected when an external antenna is used.”

As is apparent from this portion of the application, the undesirable coupling of energy from a transmitting antenna into a non-transmitting antenna is reduced by changing the characteristics of the non-transmitting antenna, *i.e.*, the resonance frequency of the non-transmitting antenna. Claim 1 is now more clearly directed to this aspect of Applicant’s invention. In particular, Applicant has deleted “circuit” from the claim to remove any confusion created by the use of “antenna system” in the Wilcox patent.

In contrast to Applicant’s invention, the methods and apparatus of the Wilcox patent do not operate by changing the resonance frequency of the antenna. This is made transparently apparent by comparing the figures in the respective documents, where Applicants’ disclosure clearly depicts elements that operate to change the resonant frequency of an antenna whereas the Wilcox patent depicts circuits added to the feed lines of the antenna that effectively operate as filters, attenuating signals coupled from the antenna to the remaining portions of Wilcox’s system.

Any lingering doubt is resolved by reading the accompanying descriptions appearing at column 4, lines 41 – 54 and column 8, lines 54 – 57 provided by Wilcox (emphasis added):

“Optionally, the multiple antenna system 200 can include a second parallel circuit 222 selectively connectable to the second signal path 226. The second parallel circuit 222 can reduce the coupling between the first and second antennas 214, 224 by presenting a high insertion loss between the antenna 224 and the signal circuit 220 when the signal circuit 210 is in use and a low insertion loss between the same points when the signal circuit 220 is in use.

It is preferable that the first parallel circuit 212 be connected to the first signal path 216 near the first antenna 214 and create a termination impedance at the input to the first antenna 214 equivalent to an open circuit when the second signal circuit is in use. The first parallel circuit 212 can include active or passive components.

* * *

The second mode of operation for the QWT circuit 504 is the “isolation mode”, also called isolation band mode. The isolation mode presents a specific impedance at the antenna feed point.”

For the foregoing reasons, Applicant respectfully submits that independent claim 1 is allowable. Applicant respectfully requests that the Examiner withdraw the rejection of claim 1. Independent claim 12 is allowable for reasons similar to claim 1, and for reasons attributable to its independently-recited features. Therefore, Applicant respectfully requests that the rejection of claim 12 be withdrawn as well. Claims 2 – 3 and 13 – 14 are allowable as depending from allowable base claims and for reasons attributable to their independently-recited features. Applicant therefore respectfully requests that the rejection of claims 2 – 3 and 13 – 14 also be withdrawn.

B. Rejection of Claims 5 – 9 and 16 – 20 under 35 U.S.C. § 103(a)

Applicant respectfully submits that the Trikha patent is not seen to overcome the deficiencies of the combination of the AAPA and the Wilcox patent. For this reason, and for reasons attributable to the independently-recited features of claims 5 – 9 and 16 – 20, Applicant respectfully requests that the rejection of claims 5 – 9 and 16 – 20 be withdrawn.

III. Conclusion

The Applicant submits that in light of the foregoing remarks the application is now in condition for allowance. Applicant therefore respectfully requests that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

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Date

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